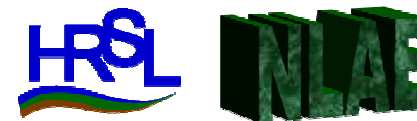
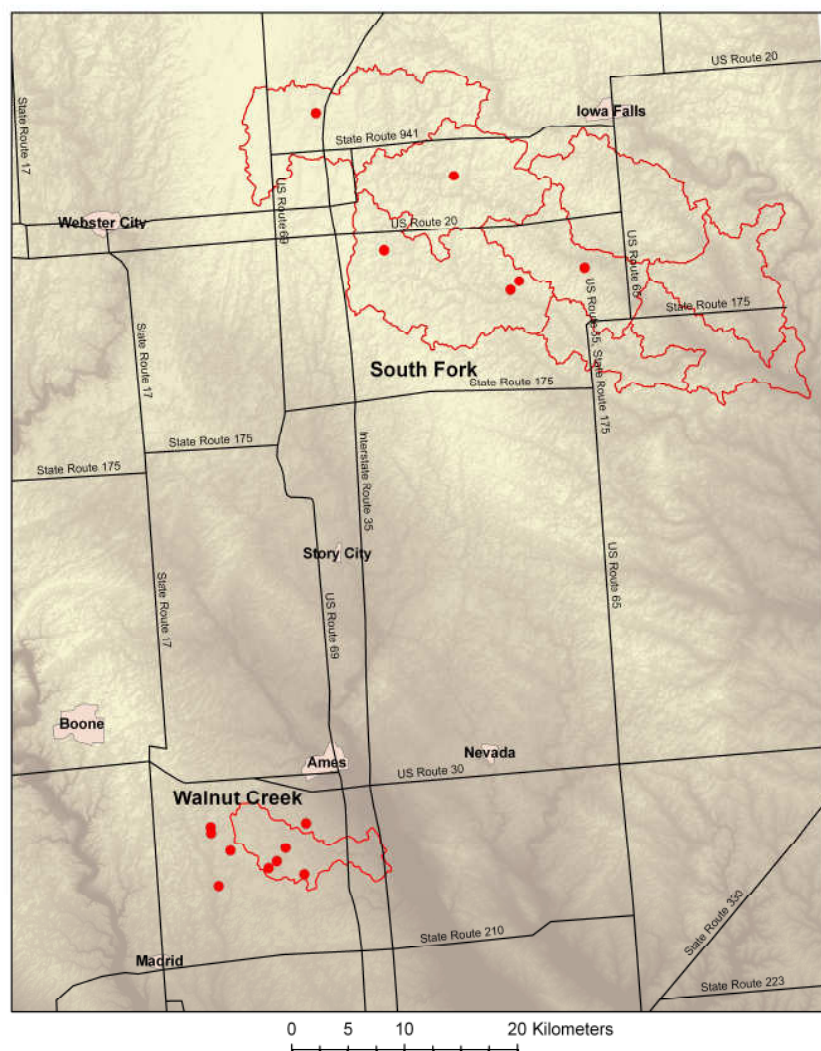




USDA-ARS
South Fork, Iowa



Hydrology and Remote Sensing Laboratory, Beltsville, MD
And
National Laboratory for Agriculture and the Environment, Ames, IA



6 Soil Moisture Stations

- Hydras at 5 and 50 cm.
- 2 stations have flux instruments

~700 km² of Corn and Soy Row Crops

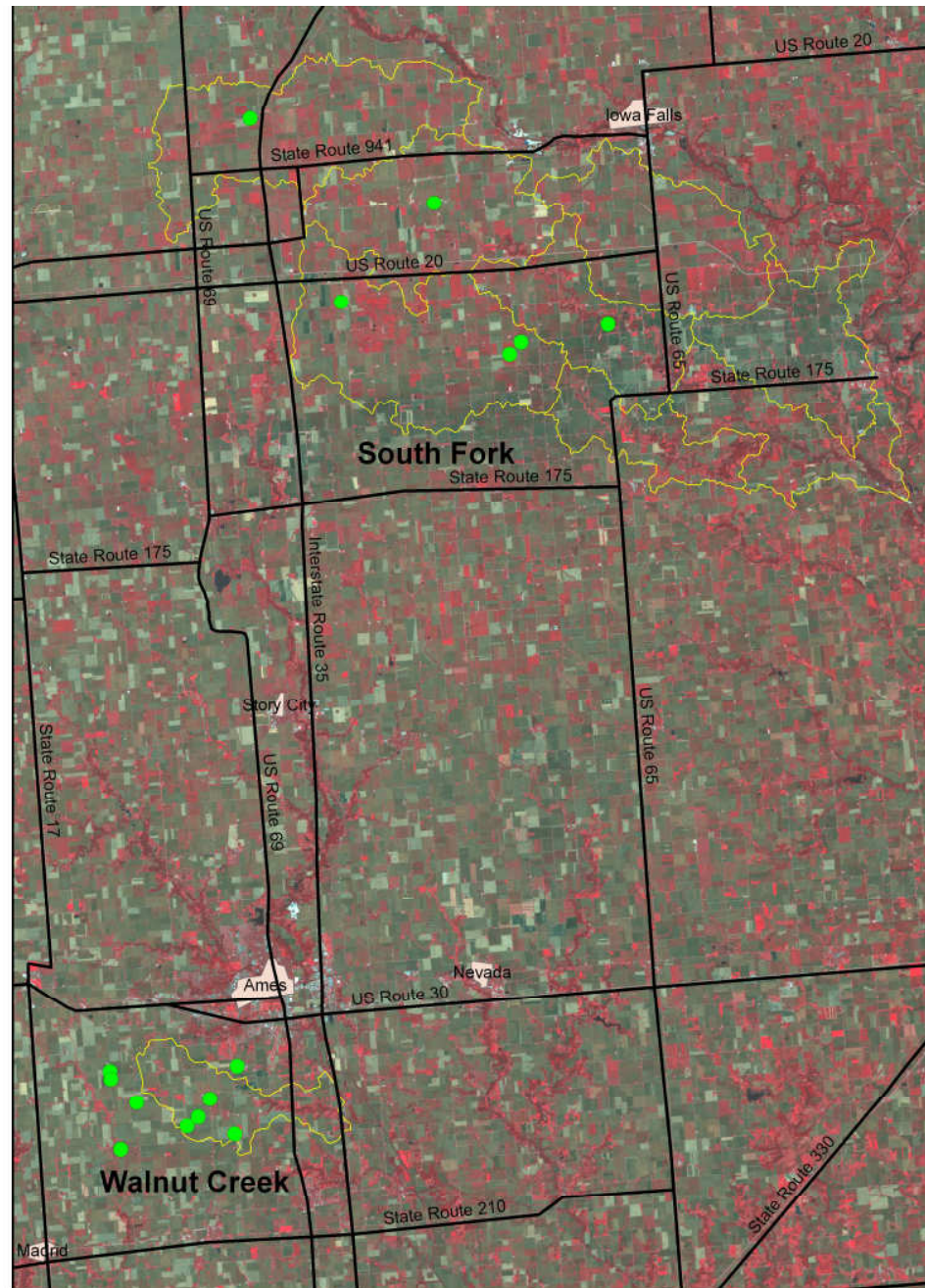
835 mm of precipitation annually

Flat Topography with tile drainage

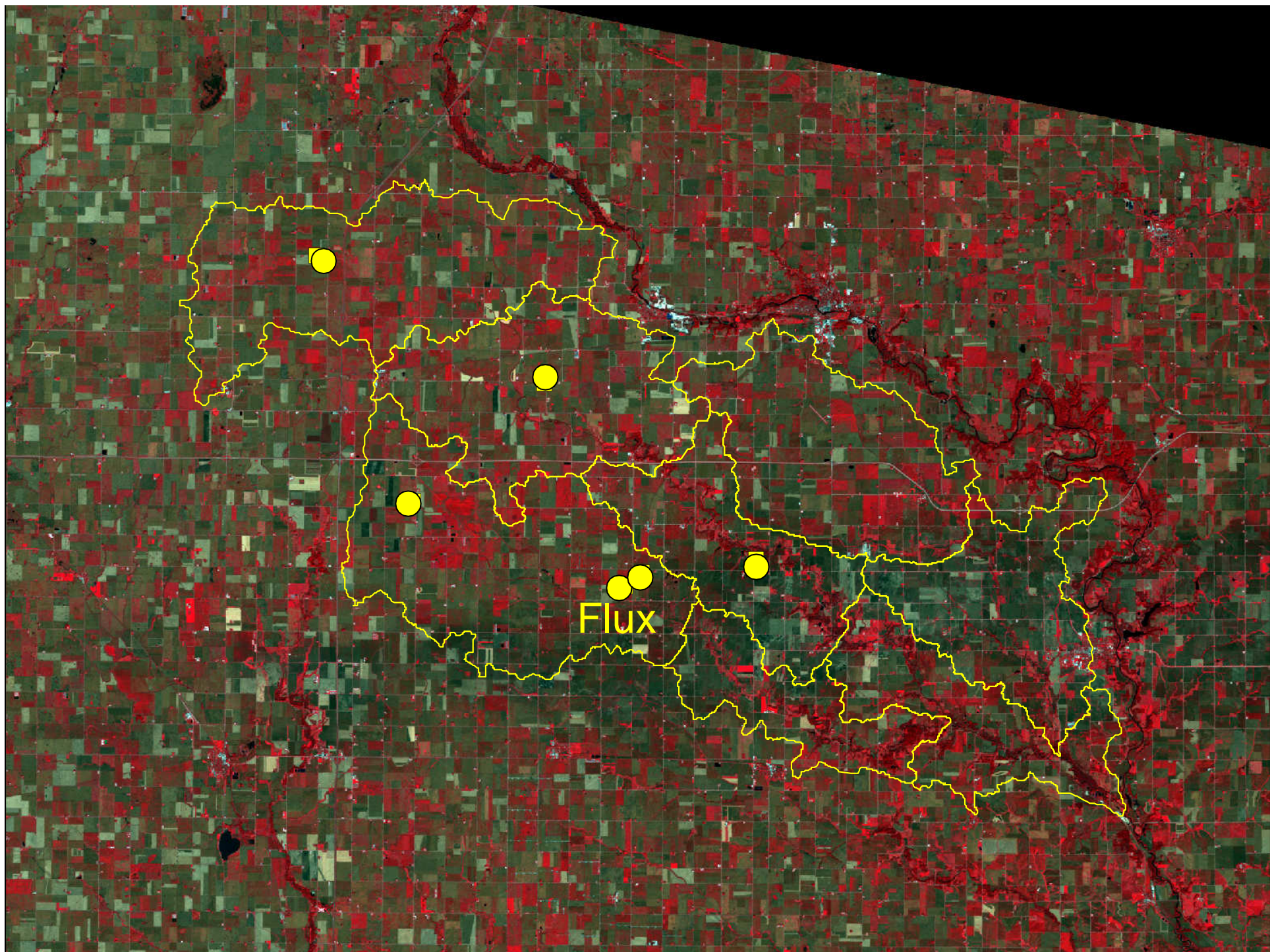
Research Projects:

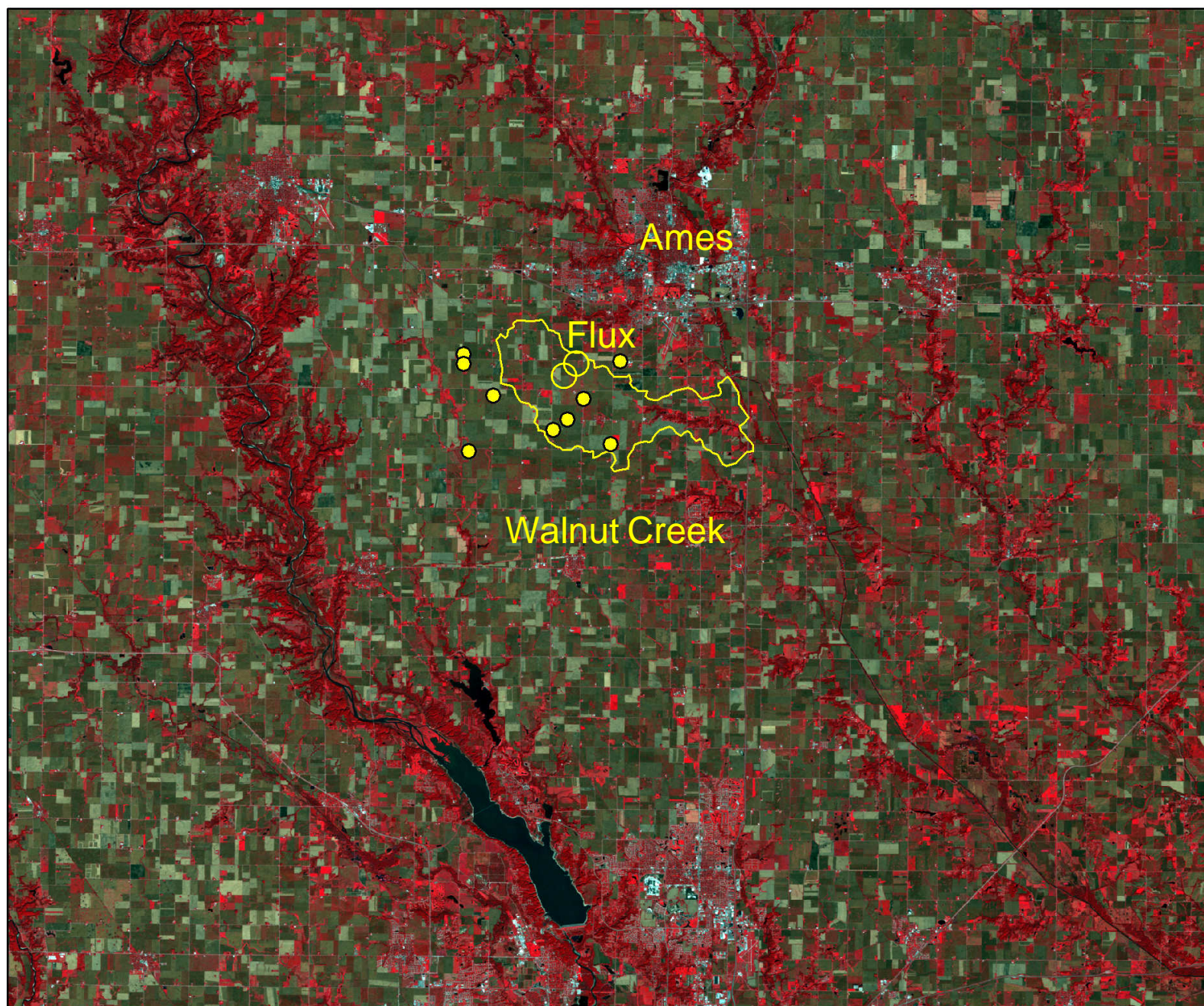
- Soil Tillage & Crop Residue
- Soil Moisture
- Atmospheric Flux Studies
- SWAT Modeling
- Conservation Effects Assessment Program

Lead Scientists: Mike Cosh, HRSL
& John Prueger, NLA E



0 5 10 20 Kilometers





JECAM

Joint Experiment for Crop Assessment and Monitoring

GEO GROUP ON
EARTH OBSERVATIONS

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Study Sites

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Joint Experiment for Crop Assessment and Monitoring



The overarching goal of JECAM is to reach a convergence of approaches, develop monitoring and reporting protocols and best practices for a variety of global agricultural systems.



The overarching goal of JECAM is to reach a convergence of approaches, develop monitoring and reporting protocols and best practices for a variety of global agricultural systems. JECAM will enable the global agricultural monitoring community to compare results based on disparate sources of data, using various methods, over a variety of global cropping systems. It is intended that the JECAM experiments will facilitate international standards for data products and reporting, eventually supporting the development of a global system of systems for agricultural crop assessment and monitoring. The JECAM initiative is developed in the framework of GEO Global Agricultural Monitoring (GEOSS Task AG0703 a) and Agricultural Risk Management (GEOSS Task AG0703 b).

To achieve the JECAM goals the initiative will bring together the GEO Agricultural Monitoring Community of Practice to undertake an inter-comparison of monitoring and modeling methods, product accuracy assessments, and data fusion. JECAM will take place on a finite set of regional pilot sites that are representative of a range of global agricultural systems. Data collected and shared will include time series datasets from a variety of earth observing satellites and in-situ data which may include in situ ground survey, in-situ soil moisture monitoring and meteorological data. The Community of Practice will work with the Committee on Earth Observing Satellites (CEOS) the space-arm of GEO, and other data providers to facilitate the acquisition of Earth Observation data and ensure a coordinated approach to space based data acquisition.

[Agriculture and Agri-Food Canada \(AAFC\)](#) has taken on the secretariat role of the JECAM project on behalf the [GEO Agricultural Monitoring Community of Practice](#). One of the responsibilities as secretariat is to develop and maintain this JECAM website where government, university and non-NGO

2010 Flux and Micrometeorology



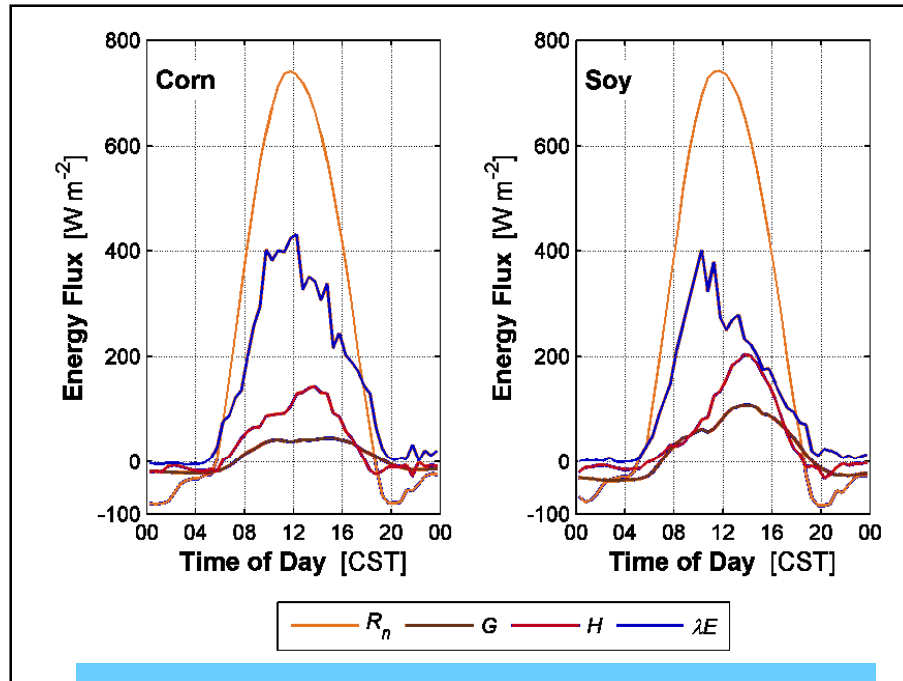
The EC Flux Station
at the SF Corn Site.

- Micrometeorological and Surface Flux measurements were collected in adjacent Corn and Soybean fields from 5 May through 6 September 2010.
- The full gamut of measurements included:
 - Humidity
 - Air Temperature
 - Pressure
 - Wind Speed/Direction
 - Turbulent Energy (H & λE) and CO_2 Fluxes
 - Four Component Radiation Budget (R_n , $K\downarrow$, etc.)
 - Soil Moisture, Temperature (5 cm) and Heat Flux
 - Surface Temperature
- The raw data was post-processed using a 30-minute averaging period and a suite of standard corrections.
- Daily means were also calculated.



Location of the EC Flux Stations.

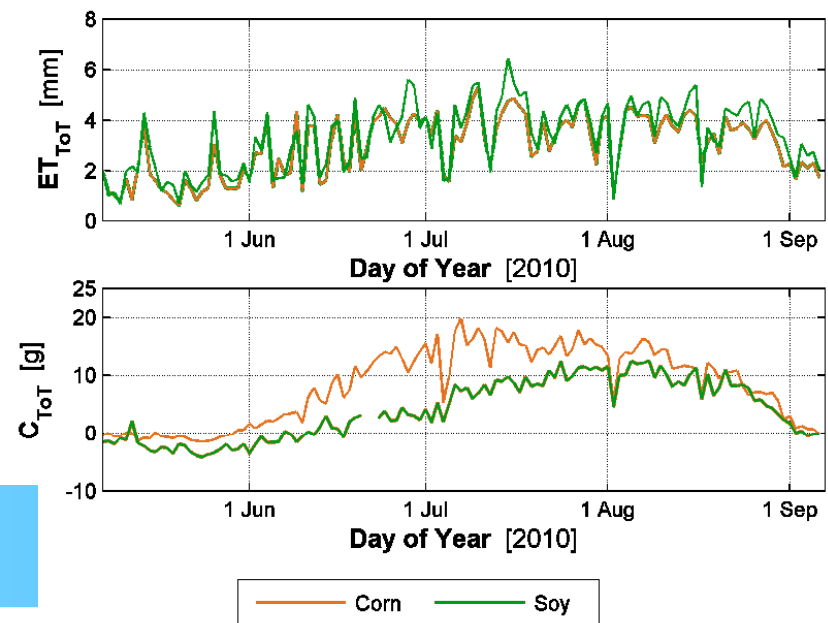
2010 Flux and Micrometeorology



The components of the Surface Energy Budget for June 10, 2010 using the 30-minute data.

2010 Daily total ET and Carbon uptake at the SF Corn and Soybean sites.

- Using these measurements both the physical processes and our ability to remotely sense and model them can be evaluated on:
 - diurnal
 - season timescales



Tillage/Residue

